

Integrated Deployment ESIF Workshops

Utility-Scale Renewable Integration Workshop Agenda Tuesday, August 21, 2012 RSF X422 Piedra Conference Room

| | | |
|----------|--|-----------------------------|
| 8:00 am | Continental Breakfast | |
| 8:30 am | Welcome, Introductions, and Objectives <ul style="list-style-type: none">• Brief introductions• Meeting objectives | |
| 9:15 am | Overview Presentations <ul style="list-style-type: none">• ESIF (Energy System Integration Facility)• ID (Integrated Deployment) | Ben Kroposki Mary Werner |
| 10:00 am | Break | |
| 10:15 am | Around the Room <ul style="list-style-type: none">• 5 minutes each on challenges as they relate to the discussion topics | All |
| 12:00 pm | Lunch & Networking | |
| 1:00 pm | Open Discussion on Challenges | All |
| 2:30 pm | Break | |
| 3:00 pm | Summarize and Prioritize Key Issues <ul style="list-style-type: none">• Develop up to six research questions• Next Steps | |
| 4:00 pm | Partnering Overview | Brent Rice |
| 4:30 pm | ESIF Tour | Ben Kroposki |
| 5:30 pm | Adjourn | |
| 6:30 pm | Dinner – Location TBD | |

Integrated Deployment ESIF Workshops

Utility-Scale Renewable Integration Workshop

Discussion Topics:

- Utility-scale Renewable Generation – grid electronics, forecasting, controlling, curtailing
- Grid challenges – frequency controls, voltage regulation, grid stability, etc.
- Transmission – limitations, improvements needed
- Grid operations – simulator training, visualization applications, etc.
- Storage – when, where, how much, what type
- Controls / Simulations / Modeling / Visualization / Data – what exists, what's needed

Questions to be addressed in Workshop:

- 1) What are the challenges faced by utilities, industry, government, and academia in these areas?
- 2) Which challenges are critical to achieving aggressive progress in renewable integration?
- 3) Which critical challenges could this group address?
- 4) Which critical challenges can the ESIF help support?

Workshop Outcomes:

- 1) List of challenges in these areas
- 2) Prioritized list of critical challenges
- 3) Research questions that could help address these challenges
- 4) Potential partnerships and next steps to address targeted research questions

Integrated Deployment ESIF Workshops

Distribution-Level Integration Workshop Agenda Wednesday, August 22, 2012 RSF X422 Piedra Conference Room

| | | |
|----------|--|-----------------------------|
| 8:00 am | Continental Breakfast | |
| 8:30 am | Welcome, Introductions, and Objectives <ul style="list-style-type: none">• Brief introductions• Meeting objectives | |
| 9:15 am | Overview Presentations <ul style="list-style-type: none">• ESIF (Energy System Integration Facility)• ID (Integrated Deployment) | Ben Kroposki Mary Werner |
| 10:00 am | Break | |
| 10:15 am | Around the Room <ul style="list-style-type: none">• 5 minutes each on challenges as they relate to the discussion topics | All |
| 12:00 pm | Lunch & Networking | |
| 1:00 pm | Open Discussion on Challenges | All |
| 2:30 pm | Break | |
| 3:00 pm | Summarize and Prioritize Key Issues <ul style="list-style-type: none">• Develop up to six research questions• Next Steps | |
| 4:00 pm | Partnering Overview | Brent Rice |
| 4:30 pm | ESIF Tour | Ben Kroposki |
| 5:30 pm | Adjourn | |
| 6:30 pm | Dinner – Location TBD | |

Integrated Deployment ESIF Workshops

Distribution-level Integration Workshop

Discussion Topics:

- Smart Grid –“smart” communications and controls, smart meters, demand response
- Distributed Generation – distribution system / feeder impacts, analysis, controls, etc.
- Building load / Building integrated renewable generation / Net Zero Energy Buildings & Communities – how to plan for, model within a grid system, control, etc.
- Electric Vehicle integration - interaction with grid, storage, load control, etc.
- Vehicle / Building / Grid interactions – how to model, analyze, optimize, control, etc.
- Controls / Simulations / Modeling / Visualization / Data – what exists, what’s needed

Questions to be addressed in Workshop:

- 5) What are the challenges faced by utilities, industry, government, and academia in these areas?
- 6) Which challenges are critical to achieving aggressive progress in renewable integration?
- 7) Which critical challenges could this group address?
- 8) Which critical challenges can the ESIF help support?

Workshop Outcomes:

- 5) List of challenges in these areas
- 6) Prioritized list of critical challenges
- 7) Research questions that could help address these challenges
- 8) Potential partnerships and next steps to address targeted research questions

Integrated Deployment ESIF Workshops

Isolated / Islanded Grid Systems Workshop Agenda Thursday, August 23, 2012 RSF X422 Piedra Conference Room

| | | |
|----------|--|-----------------------------|
| 8:00 am | Continental Breakfast | |
| 8:30 am | Welcome, Introductions, and Objectives <ul style="list-style-type: none">Brief introductionsMeeting objectives | |
| 9:15 am | Overview Presentations <ul style="list-style-type: none">ESIF (Energy System Integration Facility)ID (Integrated Deployment) | Ben Kroposki Mary Werner |
| 10:00 am | Break | |
| 10:15 am | Around the Room <ul style="list-style-type: none">5 minutes each on challenges as they relate to the discussion topics | All |
| 12:00 pm | Lunch & Networking | |
| 1:00 pm | Open Discussion on Challenges | All |
| 2:30 pm | Break | |
| 3:00 pm | Summarize and Prioritize Key Issues <ul style="list-style-type: none">Develop up to six research questionsNext Steps | |
| 4:00 pm | Partnering Overview | Brent Rice |
| 4:30 pm | ESIF Tour | Ben Kroposki |
| 5:30 pm | Adjourn | |
| 6:30 pm | Dinner – Location TBD | |

Integrated Deployment ESIF Workshops

Isolated / Islanded Grid Systems Workshop

Discussion Topics:

- Islanded / Isolated Systems – unique challenges, limitations, needs
- Remote locations – unique challenges, limitations, needs
- Combining multiple small grid systems – grid system needs, controls, hardware,
- Distributed generation, storage, combination systems (i.e. wind/diesel systems)
- Micro Grid systems – connect to a bigger grid and be able to isolate – what's needed
- Controls / Simulations / Modeling / Visualization / Data – what exists, what's needed

Questions to be addressed in Workshop:

- 9) What are the challenges faced by utilities, industry, government, and academia in these areas?
- 10) Which challenges are critical to achieving aggressive progress in renewable integration?
- 11) Which critical challenges could this group address?
- 12) Which critical challenges can the ESIF help support?

Workshop Outcomes:

- 9) List of challenges in these areas
- 10) Prioritized list of critical challenges
- 11) Research questions that could help address these challenges
- 12) Potential partnerships and next steps to address targeted research questions